US Army Corps
of Engineers
New England Division
February 1987

Definite Project Report - Final
Roosevelt Campobello International Park,
Canada

Emergency Shoreline Protection

EMERGENCY SHORELINE PROTECTION
ROOSEVELT CAMPOBELLO INTERNATIONAL PARK
CANADA

DEFINITE PROJECT REPORT -FINAL

Department of the Army
New England Division, Corps of Engineers
Waltham, Massachusetts 02254-9159

February, 1987

SYLLABUS

This study is authorized under the special continuing authority contained in Section 14 of the 1946 Flood Control Act as ammended, and investigates shoreline protection measures for the historic Mulholland Point lighthouse located in the Roosevelt Campobello International Park (RCIP) , Campobello Island, Canada.The park was established by agreement signed by President Lyndon B. Johnson and Canadian Prime Minister Lester Pearson in 1964. The agreement allows the RCIP Commission to obtain assistance from the Corps of Engineers and other Federal agencies without reimbursement.

The Mulholland Point lighthouse was constructed in 1885 and served navigation for both United States and Canadian shipping until 1963 when the FDR Memorial bridge was completed. The lighthouse and surrounding land was donated to the RCIP in 1984. Erosion protection measures constructed over 30 years ago have deteriorated and are no longer effective. The lighthouse easily meets criteria for the United States Register of Historic Places and is currently a popular tourist attraction in the park.

The lighthouse is in immediate danger of failure. The erosion has progressed to a point where the top of the bank is within 1 to 5 feet of the foundation of the lighthouse. The 25-foot high bank is subject to a mean tide range of 17.5 feet and average currents of 10 feet per second in the Lubec Channel, which separates the United States and Canada.

This report describes the plan formulation process which involves the development and evaluation of erosion protection measures. The selected plan is composed of stone slope protection for a total length of 250 feet extending up the slope 13 feet vertically or 2 feet above the Mean High Water line. The stone protection layers would extended 10 feet horizontally at the toe of the slope. The upper slope, above the stone protection, Would be filled and flattened to provide a horizontal minimum distance of 6 feet from the lighthouse foundation to the top of bank. The project has an estimated first cost of $142,000 and an annual cost of $14,800. Total average annual benefits are estimated to be $47,700 based on historic and visitation values of the lighthouse. The project is justified with a benefit-to-cost of 3.2 to 1.

It is recommended that, subject to certain items of local cooperation as outlined in this report, the proposed plan be constructed. Due to the unique nature of the International Park and consistent with the International Agreement it is recommended that the project costruction cost be 100 percent Federal as requested by the RCIP Commission in their January 7, 1987 letter included in the report.

DEFINITE PROJECT REPORT
EMERGENCY SHORELINE PROTECTION
ROOSEVELT CAMPOBELLO INTERNATIONAL PARK

TABLE OF CONTENTS

DEFINITE PROJECT REPORT
EMERGENCY SHORELINE PROTECTION
ROOSEVELT CAMPOBELLO INTERNATIONAL PARK
CANADA

February 1987

AUTHORITY

This report provides results of investigations accomplished under the special continuing authority contained in Section 14 of the 1946 Flood Control Act, as amended. The objective of the study is to determine the need and feasibility of constructing emergency shoreline protection to prevent the loss of the lighthouse located on Mulholland Point within the Roosevelt Campobello International Park (RCIP) on Campobello Island, Canada. Federal assistance for alleviating the erosion problem was requested by Mr. Henry W. Stevens, Superintendent and Executive Director for the Roosevelt Campobello International Park Commission.

Under the provisions of the Section 14 authority, Federal construction funding is available for the purpose of protecting highways, bridges, public works and public use facilities from streambank or shoreline erosion. Such work must be economically justified and advisable in the opinion of the Chief of Engineers.

The Roosevelt Campobello International Park, the only one of its kind in the world, was established under agreement signed by United States President Lyndon B. Johnson and Canadian Prime Minister Lester B. Pearson on January 22, 1964. The Commission consists of six members: three from Canada and three from the United States. The agreement between the United States and Canada which established the park and the list of current commissioners is contained in the appendix. Article 9 of the agreement states:

"Arrangements may be made with the competent agencies of Canada and the United States for rendering, without reimbursement, such services as the Commission may request for the orderly development, maintenance and operation of the park."

THE STUDY AREA

Politically part of New Brunswick, Canada, Campobello Island is separated from the state of Maine by the Lubec Narrows (see Figure 1). It is the largest and outermost of a group of islands in Passamaquoddy Bay, which is located at the northwest side of the entrance to the Bay of Fundy. Campobello Island has a total area of 20 square miles, is 9 miles long at its longest and three miles wide at its widest. The island is located approximately 120 miles east of Bangor, Maine.

The Roosevelt Campobello International Park is located on the southeast end of Campobello Island and includes 2,700 acres. The park was proposed by President John F. Kennedy and Prime Minister Lester B. Pearson in 1963 and officially opened in the summer of 1964 as a memorial to President Franklin D. Roosevelt who spent his summers there. While the Roosevelt summer cottage is the major attraction the largest part of the park consists of protected natural areas including the area around the Mulholland Point (see Figure 2).

The erosion site is located on the tip of Mulholland Point which projects about 400 feet from the island toward the Lubec Narrows and creates the greatest width restriction in the narrows. The lighthouse rests on a mortared stone foundation at the extreme westernmost tip of Mullholland Point (see following photographs). The base of the lighthouse is approximately 28 feet above the surface of the beach and about 18 feet above the highwater line.

Mulholland Point Lighthouse was built in 1885. The Lubec Narrows, with its swift tidal currents was used by small coasters and freighters travelling from ports along the coast of Maine to ports in Cobscook Bay and Passamaquoddy Bay. This route was shorter and more protected from foul weather than the alternative route along the eastern side of Campobello Island.

The lighthouse is a wooden-framed, octagonal tower, 44 feet high, with a basal diameter of 22 feet, tapering to eight feet in diameter just below the lantern deck. The iron lantern, which sits about 60 feet above the high water line, once held a seventh order dioptric, oil-fueled lamp. The fixed white light could be seen from about four miles away in clear weather. A small building (16 x 12 x 14 feet) which served as a storehouse and bunkroom adjacent to the tower has been removed.

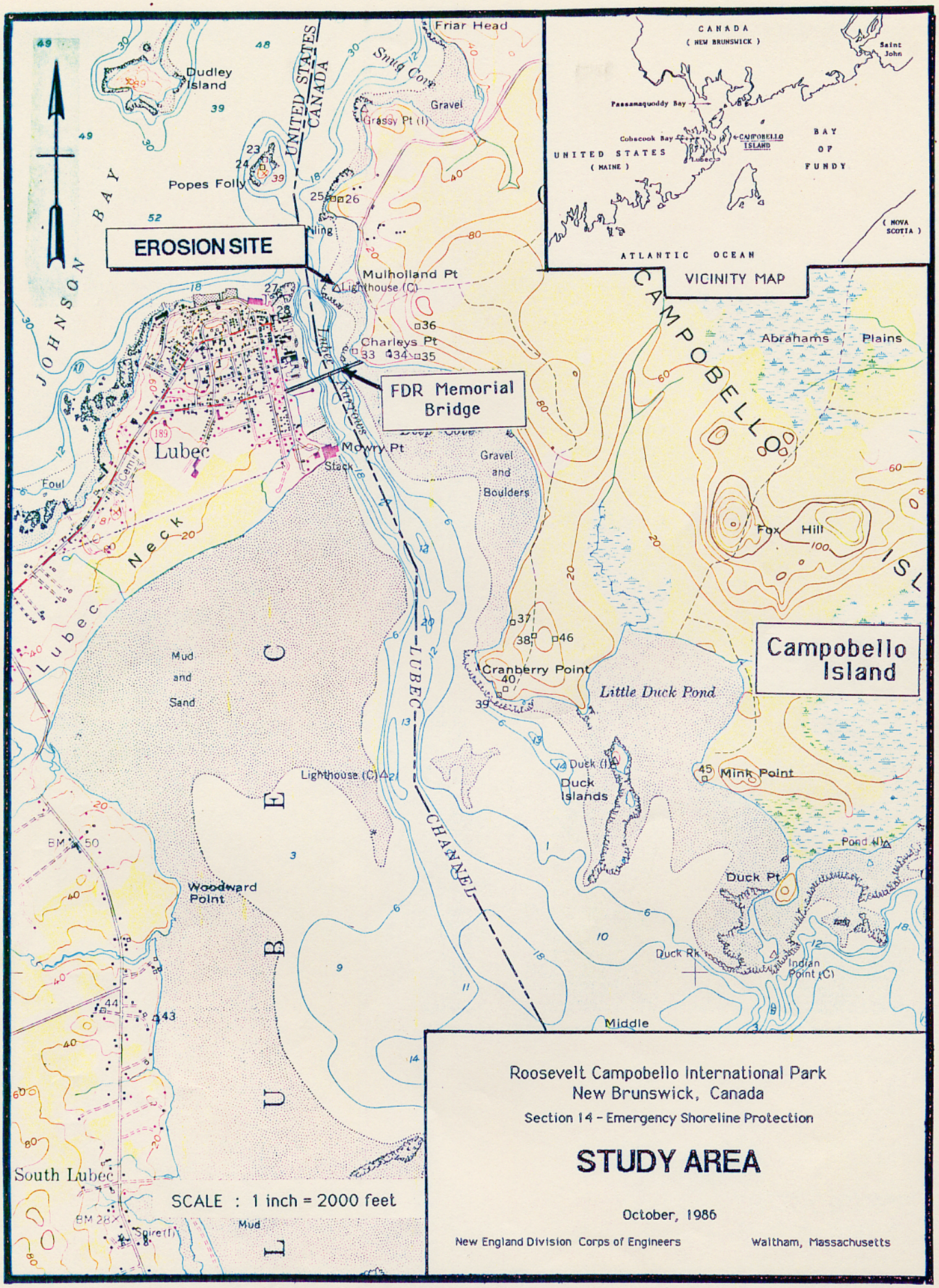
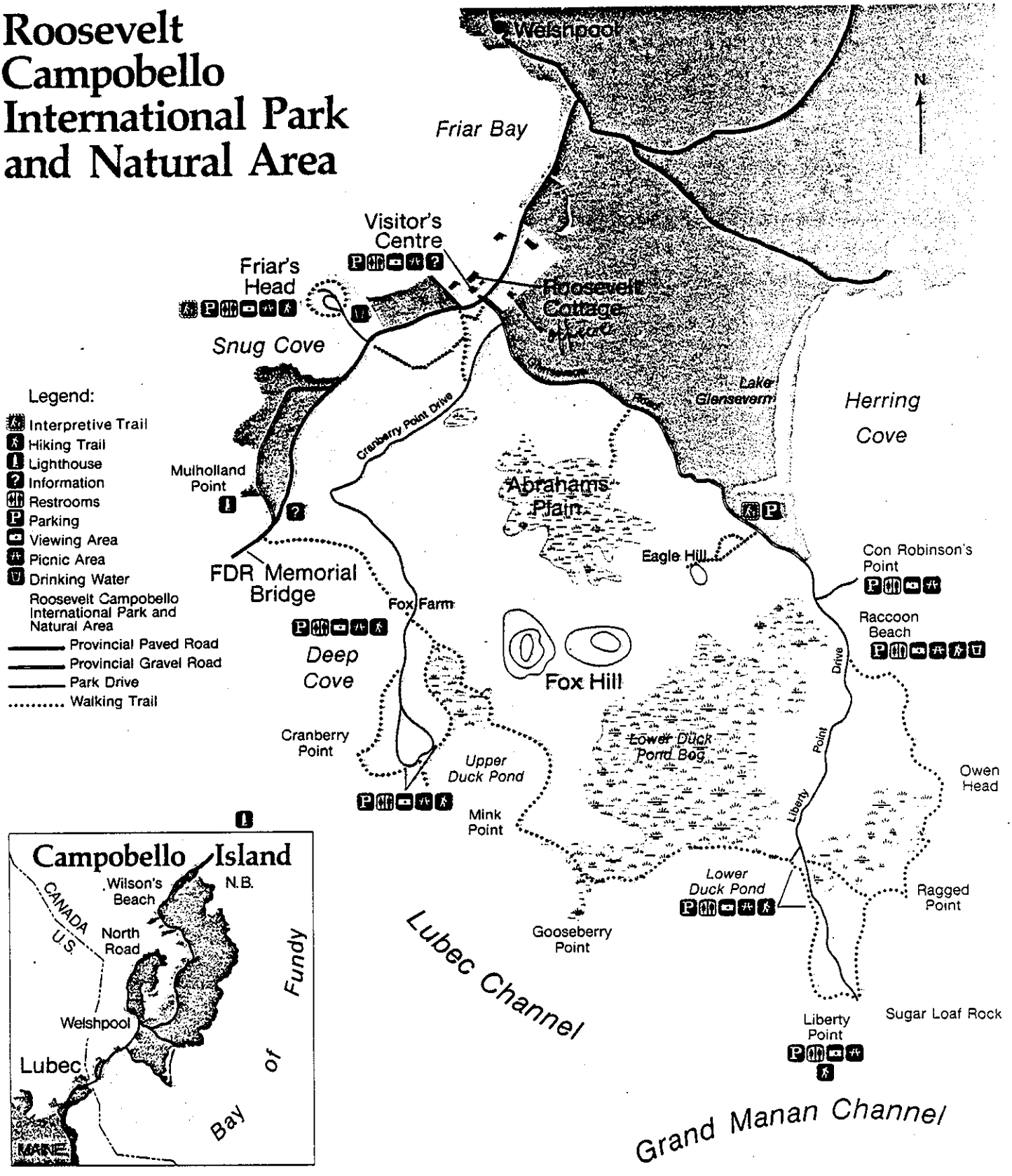

EROSION SITE
FDR Memorial Bridge
Campobello Island
VICINITY MAP
CANADA
(NEW BRUNSWICK)
UNITED STATES
(MAINE)
ATLANTIC OCEAN
(NOVA SCOTIA)
Saint John
Passamaquoddy Bay
Cobscook Bay
CAMPOBELLO ISLAND
BAY OF FUNDY
Lubec
JOHNSON BAY
UNITED STATES
CANADA
Friar Head
Dudley Island
Popes Folly
Snug Cove
Gravel
Grassy Pt (I)
Mulholland Pt
Lighthouse (C)
Charleys Pt
Lubec
Mowry Pt
Stack
Foul
Lubec Neck
Gravel and Boulders
Abrahams Plains
CAMPOBELLO ISL
Fox Hill
Mud and Sand
LUBEC CHANNEL
Cranberry Point
Little Duck Pond
Duck (I)
Duck Islands
Mink Point
Pond (I)
Duck Pt
Duck Rk
Indian Point (C)
Middle
Lighthouse (C)
Woodward Point
BM 50
BM 28
South Lubec
Spire (T)
Mud
SCALE : 1 inch = 2000 feet
Roosevelt Campobello International Park
New Brunswick, Canada
Section 14 - Emergency Shoreline Protection
STUDY AREA
October, 1986
New England Division Corps of Engineers
Waltham, Massachusetts

Figure 1

Roosevelt Campobello International Park and Natural Area



Scale:

0 1 Miles

0 1 Kilometers

FIGURE 2

In 1898, the keeper of the lighthouse reported to the Superintendent of Lights that the strong tidal currents in the Lubec Narrows were rapidly eroding the shore near the lighthouse. Alternatives considered over the following 40 years for dealing with this problem included: 1) moving the lighthouse inland away from the eroding bank, 2) relocating the lighthouse to another island and 3) building log and stone revetments to prevent further erosion. Of the three, only the latter was accomplished in1954. Apparently, the demand for safe passage through the narrows from Canadian and American interests was sufficient to prevent the government from abandoning the light at Mulholland Point. The building was well maintained and remains structurally sound today.

When navigational lights were placed on the new FDR bridge (connecting Lubec, Maine with Campobello Is.) in 1962, the light at Mulholland Point became obsolete. The lighthouse was decommissioned in 1963, and was sold to Mr. Clifford Calder, a local resident. The Look Brothers of Whiting, Maine, later acquired the lighthouse, and they donated the property to the RCIP on December 4, 1984.

The Mulholland Point Lighthouse meets most criteria for the United States National Register of Historic Places. It possesses integrity of location, design, setting, materials and workmanship, as well as significant historical associations with the local area. Its location on the international boundary between Canada and the United States and its importance to each country's economics make it a rarity among the region's lighthouses. Although it has not been used as a navigational aid for over 20 years, the lighthouse is still a prominent local landmark. It is the dominant feature seen as visitors cross the FDR bridge to Campobello Island. It both enhances and is enhanced by the RCIP. Since the lighthouse itself is in excellent physical condition, the RCIP administration plans to construct adjacent facilities such as improved access, parking and interpretive features once the shoreline is stabilized and the site is safe for public use.

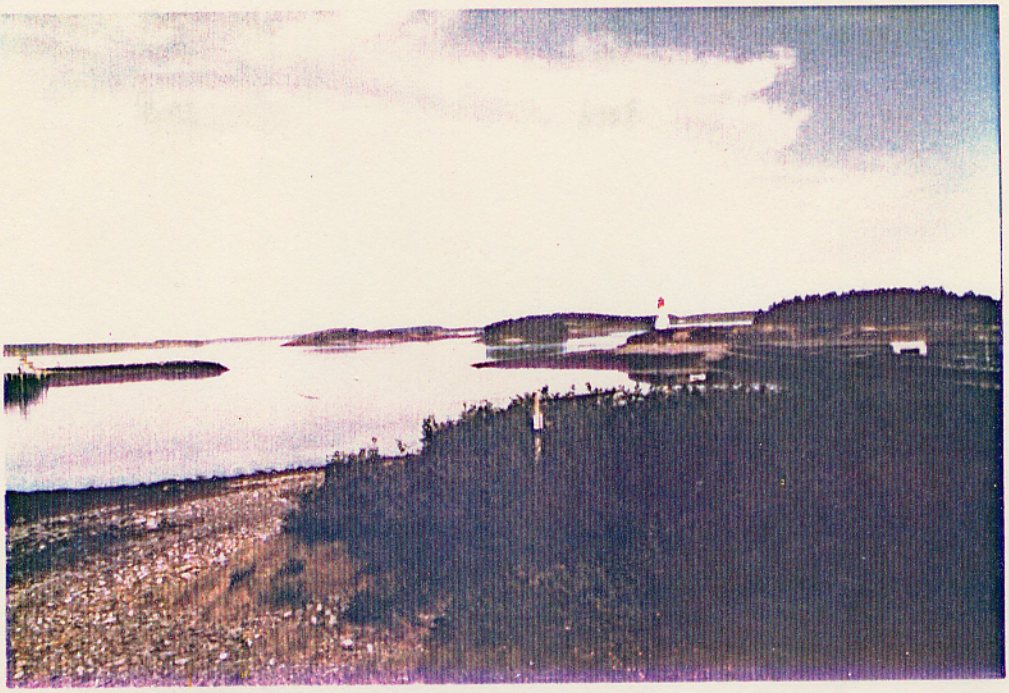
EROSION PROBLEM

The erosion site consists of approximately 250 linear feet of eroding shoreline at Mulholland Point. The top of the existing 25-foot-high bank ranges from 1 to 5 feet from the stone masonry foundation of the lighthouse. The upper 18 feet of the bank slopes at approximately 1 vertical on 1.5 horizontal and consists of light brown silty, sandy, gravel. Portions of the upper bank are covered with dense brush. The lower 7 feet of the bank slopes at approximately 1 vertical on 3 horizontal and is covered over much of its length with a layer of rounded cobbles and boulders up to 18 inches in size. A 4-to-5 foot high timber crib wall extends along approximately 103 linear feet of the lower slope and is filled with similar stones. The natural beach slopes at approximately 1 vertical on 20 horizontal and consists of rounded cobbles gradually decreasing in size from a maximum of 10 inches at the base of the back slope to a maximum of 4 inches at mean low water.

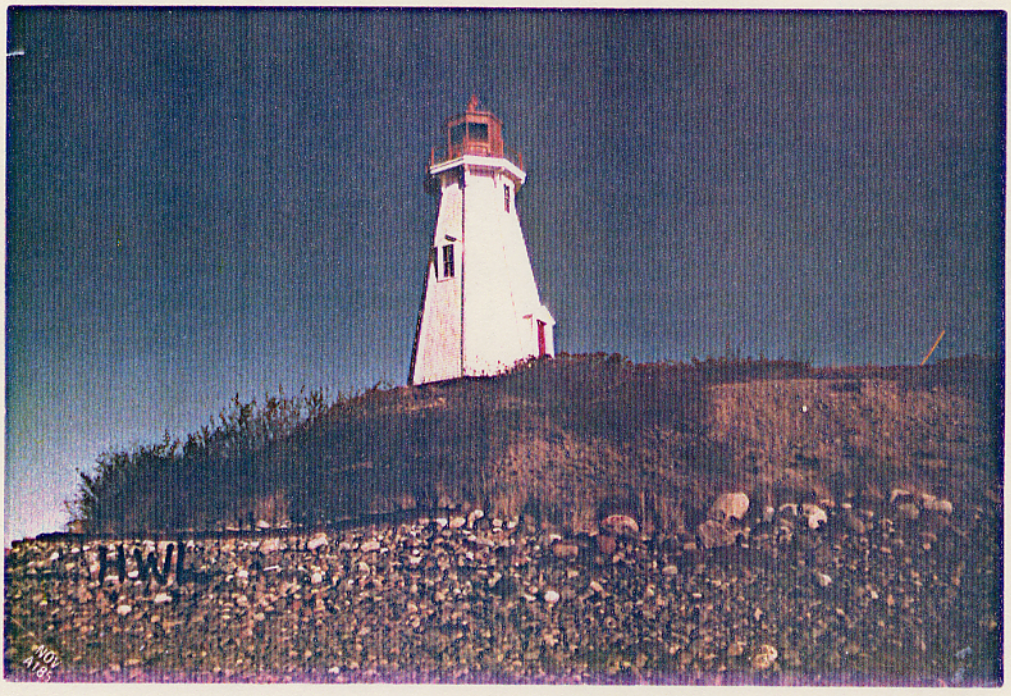
The existing timber crib, constructed in 1954, consists of 6 to 8-inch diameter untreated logs pinned together with 1/2 inch diameter steel rods. Much of the timber is badly rotted and a critical portion of the crib which is subjected to the most severe flow conditions has failed.

In one area the top of the bank is approximately 1 foot from the foundation of the lighthouse. Due to this situation, the lighthouse is in immediate danger of failure, and prompt attention is required. The RCIP Commission can not proceed with improvements to the site or increase visitation until safety is assurred.

Due to the exteme mean tide range of 17.5 feet at the site and the point's location along the narrow channel, the primary cause of erosion is tidal currents. During a site visit a current of 7 feet per second was observed. Since this measurement was not taken during the peak tidal flow, a design velocity of 10 feet per second was selected. Wave heights of 2 feet can be expected during severe storms but are not considered to be a major factor in the erosion problem.



Mulholland Point Lighthouse as seen from FDR Memorial Bridge



Mulholland Point lighthouse - View from south

PLAN FORMULATION

Three alternative approaches to the erosion problem were investigated during the study:

A. Do nothing
B. Construct a concrete seawall around base of Mulholland Point
C. Construct stone slope protection around base of Mulholland Point

Without providing any form of erosion protection Mulholland Point would continue to erode and could undermine the lighthouse foundation at any time. Loss of the lighthouse would significantly reduce visitation and eliminate the historical value of the area. Without permanent protection, the RCIP administration would have to construct temporary measures. The most likely temporary measure would be placement of large rock of at least 2 feet diameter. This rock would have to be placed on the slope by heavy equipment working from the toe of the bank because there is no space around the base of the lighthouse for equipment to operate. Construction could take place only during low tide when the beach slope is exposed. This measure would provide emergency protection for about two years because, without the proper grading and bedding layers, bank soil will continue to erode from exposure to currents and tidal action within the voids of the rock. Temporary slope protection measures would not provide any frost protection for the lighthouse foundation which currently has only one foot of soil protection. In addition, foot traffic around the foundation or on the steep bank would have to be prohibited due to instability of the upper slope and the safety risk.

Construction of a seawall would provide permanent erosion protection for the point and the lighthouse. However this type of structure would be the most expensive and least aesthetically pleasing when compared to other alternatives.

Construction of stone slope protection would provide permanent erosion protection for Mulholland Point and the lighthouse with minimal maintenance . The protection would consist of graded layers of stone providing a total thickness capable of withstanding the extreme tide range and high currents. This plan was found to be economically feasible and is described in detail under the Selected Plan.

SELECTED PLAN

Stone slope protection would consist of a graded system of stone protection, stone bedding and gravel bedding placed on a 1 vertical on 2 horizontal slope for a total length of 250 feet. See Figure 3 for plan view.

Prior to placing the stone protection the remains of the existing timber cribbing would be removed and the slope flattened with compacted gravel backfill. The stone protection would extend up the slope 13 feet vertically or 2 feet above the Mean High Water line to protect against a 2-foot wave height. At the toe of the slope the stone layers would extend horizontally 10 feet to prevent undermining. See Plate 1 for a typical cross section.

The upper slope, above the stone protection, would be filled and flattened to 1 vertical on 2 horizontal and topsoiled and seeded. This fill would extend horizontally from the lighthouse foundation a minimum distance of 6 feet.

The top of the stone protection would provide a 5-foot-wide base for a walkway around the point and minimize foot traffic on the more fragile earth and vegetation around the base of the lighthouse.

ESTIMATES OF FIRST COSTS AND ANNUAL CHARGES

Estimates of first costs and annual charges for the proposed project are presented in Table 1. An annual cost of $500 for operation and maintenance of the project after construction has been included in the estimate of non-Federal responsibility (RCIP Commission). Annual costs are based on the current interest rate of 8-7/8% and amortized over the project life estimated at 25 years.

Table 1

PROJECT FIRST COSTS AND ANNUAL CHARGES
ROOSEVELT CAMPOBELLO INTERNATIONAL PARK, CANADA
(JANUARY 1987 PRICE LEVEL, 25-year life, 8-7/8% interest rate)

FEDERAL FIRST COST	QUANTITY	UNITS	UNIT PRICE	COST
Site Preparation	1	JOB	$5,000	$5,000
Excavation	1100	CY	7	7,700
Compacted Random Fill	950	CY	5	4,750
Compacted Gravel Fill	650	CY	12	7,800
Gravel Bedding	400	CY	15	6,000
Bedding Stone	400	CY	30	12,000
Stone Protection	950	CY	35	33,000
Topsoil and Seeding	1300	SY	4	5,200
SUBTOTAL				$81,000
CONTINGENCY (25%)				$20,300
CONSTRUCTION COST				$102,000
ENGINEERING AND DESIGN				$22,000 *
SUPERVISION AND ADMINISTRATION				18,000
TOTAL FIRST COST				$142,000

*Does not include preauthorization costs of $17,500

ANNUAL COSTS

Interest and Amortization	$14,300
Operation and Maintenance	500
TOTAL ANNUAL COST	$14,800

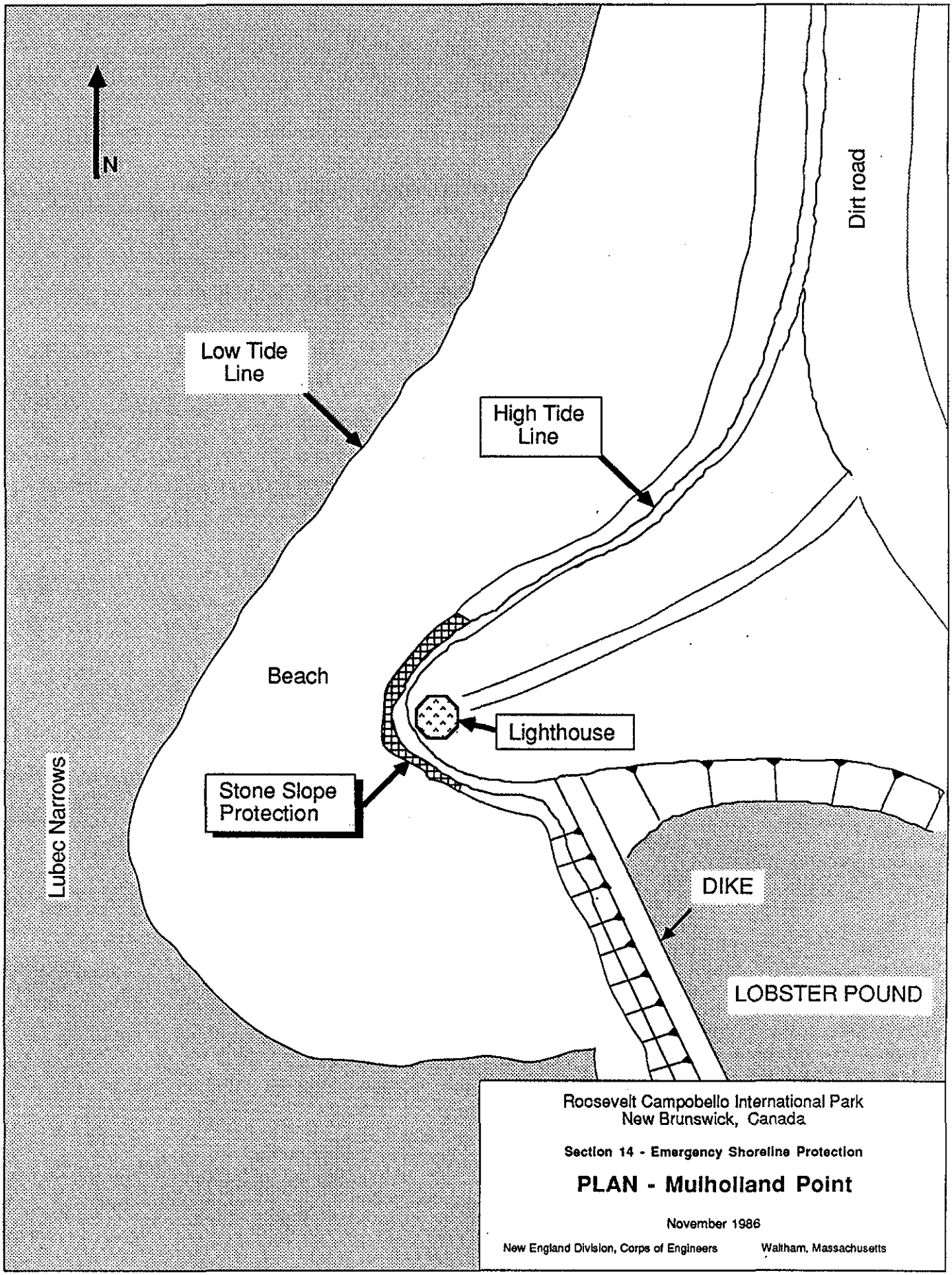
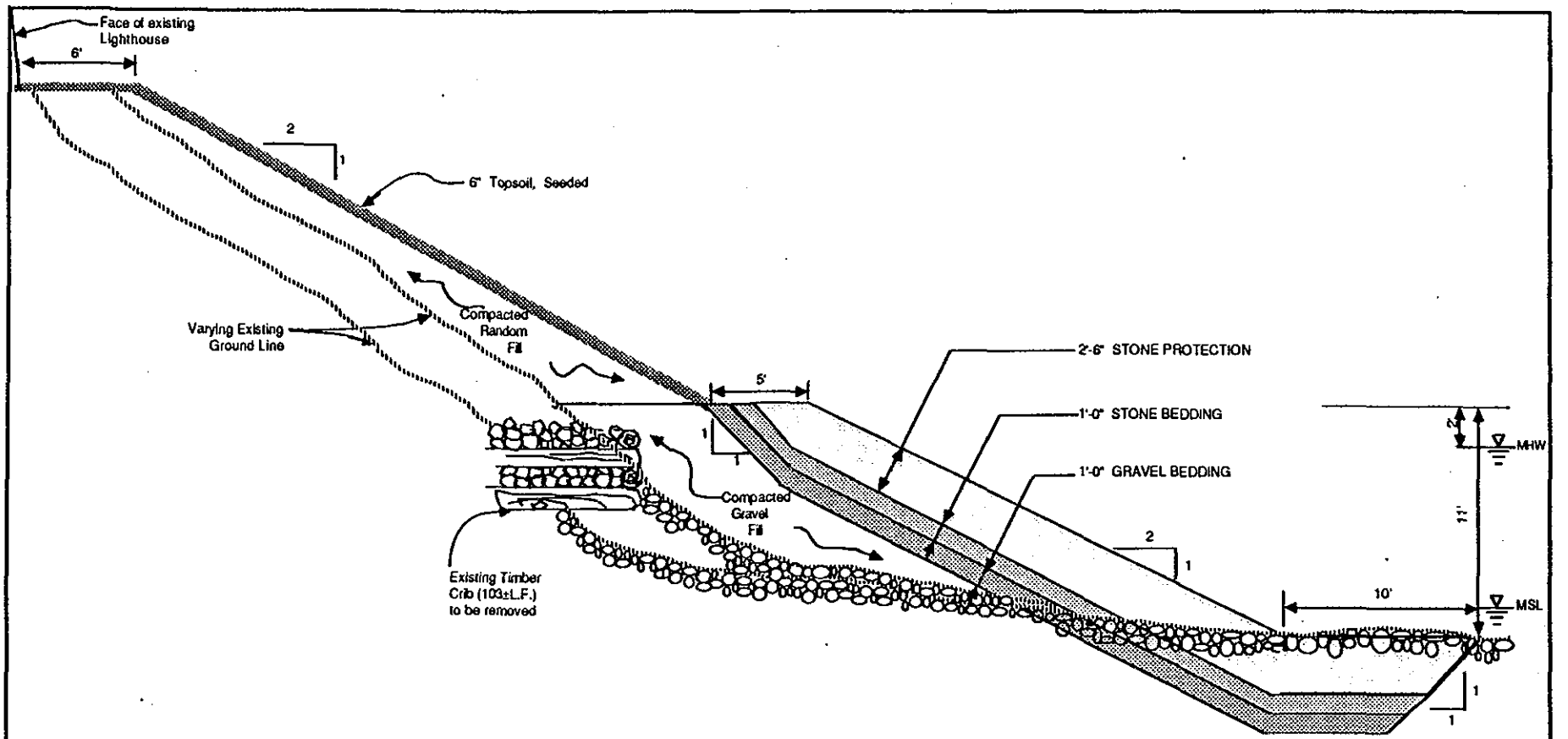

N
Dirt road
Low Tide Line
High Tide Line
Beach
Lighthouse
Stone Slope Protection
Lubec Narrows
DIKE
LOBSTER POUND
Roosevelt Campobello International Park
New Brunswick, Canada
Section 14 - Emergency Shoreline Protection
PLAN - Mulholland Point
November 1986
New England Division, Corps of Engineers
Waltham, Massachusetts

Figure 3



Roosevelt Campobello International Park
New Brunswick, Canada

Section 14 - Emergency Shoreline Protection

TYPICAL SECTION
(Preliminary)

Geotech. Eng. Br. January 1987

New England Division
Corps of Engineers Waltham, Massachusetts

Plate 1

ESTIMATES OF BENEFITS AND BENEFIT-COST RATIO

Preventing further erosion to the point and protecting the lighthouse would have positive social and cultural effects by preserving the site for continued recreational use and archeological study. The site meets much of the criteria used in determining eligibility for inclusion in the National Register of Historic Places. Its value as a historic landmark cannot be assessed in monetary terms. Given the limitations of economic analyses in this case, value is assigned in the form of losses avoided by preserving the lighthouse structure (or the annual benefit). Losses occur in two specific areas.

First, the investment in a temporary slope protection plan would be lost after about four years, as erosion damage cannot be prevented beyond this time frame without a permanent solution. Also, a temporary measure would protect the lighthouse from erosion but would not protect the foundation from frost damage as the recommended plan would with six feet of fill.

The second loss avoided would be the failure of the structure in four years which, as stated before, would represent a larger monetary loss than can be established in this analysis. This is because the loss would equal the value of the site as a cultural/historical resource and there currently exists no system for estimating such a value. The methodology used to estimate recreational value is the only available tool to assess the lighthouse if it were lost. This may be used as a substitute for cultural value but represents only a portion of its true value.

The losses avoided in both categories are computed and spread over a 25-year project life to derive an annual benefit.

Annual Demand

The lighthouse is a popular tourist attraction as it is the first structure people see when crossing the FDR bridge from Lubec, Maine. A large proportion of those visiting the Roosevelt Cottage also visit the lighthouse to take photographs. While there are no visitation figures available for the lighthouse, there are figures from the Visitor's Center from 1981-1985 which are included in the Economic Analysis appendix. The average annual visitation is 131,000 people.

Two assumptions are made to estimate the level of visitation demand for the lighthouse:

(1) Demand will remain at present levels rather than increasing or decreasing. This is based on the stability of visitation figures to the Visitor's Center for the last 5 years. The lighthouse should reflect the same.

(2) It is assumed that 25% of those visiting the Roosevelt Cottage would also visit the lighthouse, or 32,750 visitations annually.

Benefit Analysis

Annual visitation figures were used to assign value to the site. This method is based on the individual visitor's estimated "willingness to pay" for the facility. Points are assigned in five categories for general recreation from Table VIII 3-2 in the Planning Guidance Notebook (copy included in the Economic Analysis appendix). The points are converted into dollar amounts to estimate an annual benefit associated with the current recreational experience afforded by the lighthouse. Total points using this method are 10. It is important to note that recreational points are assigned for the current value of the lighthouse not a "with project" value which would be much higher.

Ten points yields a dollar amount of $2.05 per visitor. The current annual benefit associated with the lighthouse is about $67,100 (32,750 annual visitors x $2.05). Since the lifetime of the lighthouse is only four years without a permanent project, the recreational value will be discounted from year 4 to year 25 and spread over a 25-year period. This will be added to the discounted value of a temporary slope protection plan to yield the total annual benefit associated with the lighthouse. A 8-7/8% interest rate is used.

Temporary slope protection would be provided at a first cost of about $25,000 and annual maintenance of $500, lasting 4 years. This is equivalent to an annual cost of $2,600. After 4 years it is assumed that the temporary slope protection would no longer protect the point and the lighthouse structure would fail. The loss of the lighthouse is represented by its current recreational value. The average annual recreational benefit is $45,100 and is derived in detail in the economic appendix.

The total annual cost avoided or the sum of the two costs computed above is equal to the annual benefit of providing the recommended plan or $47,700. Economic feasibility is based on the comparison of annual cost and annual benefits as shown in Table 2.

Table 2
Economic Justification

Annual Cost	$14,800
Annual Benefits	$47,700
Benefit-to-Cost Ratio	3.2 to 1

ENVIRONMENTAL ANALYSIS

No signicant environmental impacts are expected to occur during or after construction of the erosion protection project. The project will affect 250 feet of gravelly beach with the stone slope protection. RCIP officials indicated that there are no major shellfish beds in the immediate project area. No eel grass beds exist offshore of the project site. Groundfish inhabiting the waters offshore include: pollack, haddock and cod. Lobsters are present in the area, as well as clam flats. Finfish and shellfish are not expected to be endangered by the project activities. Clam flats are not immediately offshore. In general, no fishing occurs in the project area.

COORDINATION

The RCIP Commission requested Corps assistance by letter of April 3,1986 (copy in appendix). Prior to that time the Commission sought assistance from the Maine Air National Guard for protecting the lighthouse. The Maine Air National Guard concluded that construction of erosion control measures was beyond their expertise.

Corps personnel visited the site and met with RCIP officials in July 1986. A local quarry in Lubec Maine was also inspected at the request of the park superintendent because its owner had agreed to allow rock removal at no charge to the park. The only provision would be that some smaller rock be made available to the quarry owner. Blasting and removal of the rock would not be at the owner's expense.

Subsequent to the site visit RCIP officials provided the Corps with data on park visitation, historical records and environmental resource data.

On December 4, 1986 a draft copy of this report was forwarded to the RCIP Commission for review and comment. Included with the report was a draft Local Cooperation Agreement (LCA). Both the draft report and draft LCA recommended cost sharing of project construction in accordance with current policy normally followed when a non-Federal sponsor is involved. In their response of January 7, 1987 (copy included in the appendix) the RCIP supported the recommended plan and requested 100% Federal financing.

RECOMMENDATION

I have reviewed and evaluated in light of the overall public interest the documents pertaining to the alternatives investigated in this study and the selected plan for providing emergency shoreline protection for the Mulholland Point Lighthouse at the Roosevelt Campobello International Park. The views and comments of the RCIP Commission have also been reviewed and considered. I have given consideration to the environmental, social and economic consequences and the engineering feasibility of all the alternatives investigated on both the regional and a national basis.

I recommend that the plan selected herein for emergency shoreline protection, be authorized for implementation as a Federal project, with such such modification as in the discretion of the Chief of Engineers may be advisable; at a first cost to the United States presently estimated at $142,000. Provided that, except as otherwise provided in these recommendations, the requirements of local cooperation shall be determined by the Chief of Engineers prior to project implementation in accordance with the following items to which non-Federal interests must agree prior to implementation:

a. Provide without cost to the United States, all lands, easements, rights-of-way, and utility relocations necessary for project construction.

b. Hold and save the United States free from damages due to the construction, operation and maintenance of the project, except where such damages are due to the fault or negligence of the United States or its contractors.

c. Maintain and operate the project after completion without cost to the United States in accordance with regulations prescribed by the Secretary of the Army. Annual operation and maintenance cost are currently estimated to be $500.

d. Prevent future encroachment which might interfere with proper functioning of the project.

e. Comply with Title VI of the Civil Rights Act of 1964 (78th Stat. 241) and Department of Defense directive 5500.11 issued pursuant to and published in Part 300 of Title 32, Code of Federal Regulations.

I recommend that funding in the amount of $ 25,000 be provided to prepare plans and specifications for the recommended plan. Additional funds will be required for the construction of the proposed project.

17 Feb 87
DATE

Thomas A. Rhen
Colonel, Corps of Engineers
Division Engineer

APPENDIX

ECONOMIC ANALYSIS

ECONOMIC ANALYSIS

ESTIMATES OF BENEFITS AND BENEFIT-COST RATIO

Preventing further erosion to the point and protecting the lighthouse would have positive social and cultural effects by preserving the site for continued recreational use and as an historic landmark. The site meets much of the criteria used in determining eligibility for inclusion in the National Register of Historic Places. Its value as a historic landmark cannot be assessed in monetary terms. Given the limitations of economic analyses in this case, value is assigned in the form of losses avoided by preserving the lighthouse structure (or the annual benefit). Losses occur in two specific areas.

First, the investment in a temporary slope protection plan would be lost after about four years, as erosion damage cannot be prevented beyond this time frame without a permanent solution.

The second loss avoided would be the failure of the structure in four years which, as stated before, would represent a larger monetary loss than can be established in this analysis. This is because the loss would equal the value of the site as a cultural /historical resource and there currently exists no system for estimating such a value. The methodology used to estimate visitation (recreational) value is the only available tool to assess the lighthouse if it were lost. This may be used as a proxy for cultural value but represents only a portion of its true value.

The losses avoided in both categories are computed and spread over a 25-year project life to derive an annual benefit.

Annual Demand

Park officials say that the lighthouse is a popular tourist attraction as it is the first structure people see when crossing the FDR bridge. A large proportion of those visiting the Roosevelt summer home also visit the lighthouse to take photographs. While there are no visitation figures available for the lighthouse, there are figures from the Roosevelt home from 1981-1985. These figures are listed below and averaged:

TABLE 1
Annual Number of Visitors to the Roosevelt Cottage

1981	129,048
1982	132,697
1983	137,262
1984	124,131
1985	131,477
average	130,932 rounded to 131,000

Two assumptions are made to estimate the level of visitation demand for the lighthouse:

(1) Demand will remain at present levels rather than increasing or decreasing. This is based on the stability of visitation figures to the Roosevelt home for the last 5 years. The lighthouse should reflect the same.

(2) It is assumed that 25% of those visiting the Roosevelt summer home also visit the lighthouse.

Total annual visitation to Mulholland Point lighthouse is estimated at 32,750 (calculation: 131,000 x 0.25 = 32,750).

Benefit Analysis

The unit day value method was used to assign visitation value to the site. This method is based on the individual visitor's estimated "willingness to pay" for the facility. Points are assigned in 5 categories for general recreation from Table VIII 3-2 in the Planning Guidance Notebook. The points are converted into dollar amounts to estimate an annual benefit associated with the current visitation experience afforded by the lighthouse. Points are assigned in Table 2.

TABLE 2
Unit Day Value Points for Visitation Experience
Mulholland Point Lighthouse*

Category	Points
a) Recreational Experience	1
b) Availability of Opportunity	3
c) Carrying Capacity	2
d) Accessibility	1
e) Environmental Quality	3
Total	10

* It is important to note that recreational points are assigned for the current value of the lighthouse not a "with project" value which would be much higher.

Table VIII-3-2—Guidelines for Assigning Points For General Recreation

Criteria	Judgment factors				
(a) Recreation experience [1]	Two general activities [2]	Several general activities	Several general activities; one high quality value activity [3]	Several general activities; more than one high quality high activity	Numerous high quality value activities; some general activities
Total points: 30 Point value:	0–4	5–10	11–16	17–23	24–30
(b) Availability of opportunity [4]	Several within 1 hr. travel time; a few within 30 min. travel time	Several within 1 hr. travel time; none within 30 min. travel time	One or two within 1 hr. travel time; none within 45 min. travel time	None within 1 hr. travel time	None within 2 hr. travel time
Total points: 18 Point value:	0–3	4–6	7–10	11–14	15–18
(c) Carrying capacity [5]	Minimum facility development for public health and safety	Basic facilities to conduct activity(ies)	Adequate facilities to conduct without deterioration of the resource or activity experience	Optimum facilities to conduct activity at site potential	Ultimate facilities to achieve intent of selected alternative
Total points: 14 Point value:	0–2	3–5	6–8	9–11	12–14
(d) Accessibility	Limited access by any means to site or within site	Fair access, poor quality roads to site; limited access within site	Fair access, fair road to site; fair access, good roads within site	Good access, good roads to site; fair access, good roads within site	Good access, high standard road to site; good access within site
Total points: 18 Point value:	0–3	4–6	7–10	11–14	15–18
(e) Environmental quality	Low esthetic factors [6] exist that significantly lower quality [7]	Average esthetic quality; factors exist that lower quality to minor degree	Above average esthetic quality; any limiting factors can be reasonably rectified	High esthetic quality; no factors exist that lower quality	Outstanding esthetic quality; no factors exist that lower quality
Total points: 20 Point value:	0–2	3–6	7–10	11–15	16–20

[1] Value for water-oriented activities should be adjusted if significant seasonal water level changes occur.
[2] General activities include those that are common to the region and that are usually of normal quality. This includes picnicking, camping, hiking, riding, cycling, and fishing and hunting of normal quality.
[3] High quality value activities include those that are not common to the region and/or Nation and that are usually of high quality.
[4] Likelihood of success at fishing and hunting.
[5] Value should be adjusted for overuse.
[6] Major esthetic qualities to be considered include geology and topography, water, and vegetation.
[7] Factors to be considered to lowering quality include air and water pollution, pests, poor climate, and unsightly adjacent areas.

TABLE 3
Revised Table VII -3-1 (FY 1986)
Conversion of Points to Dollar Values

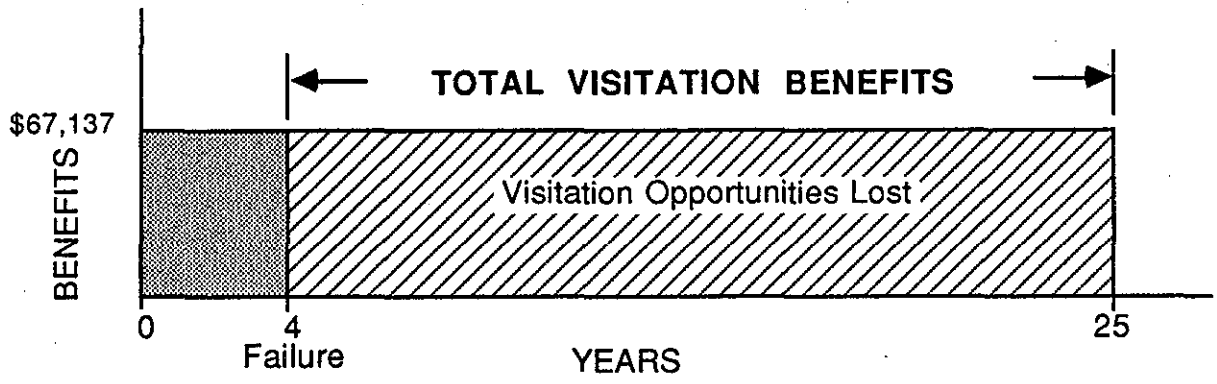
Points	0	10	20	30	40	50
$ Amounts	1.75	2.05	2.35	2.75	3.15	3.75

Ten points yields a dollar amount of $2.05 per visitor. The current annual visitation benefit associated with the lighthouse is $67,137 (32,750 annual visitors x $2.05). Without a project, the lifetime of the lighthouse is about 4 years. Therefore, 4 years of visitation opportunities are established and cannot be lost. The benefit of building a project is to avoid lost visitation opportunities from year 4 to year 25 (a 21 year period). The total visitation benefit attributable to the project would be represented by 21 years of annual benefits, discounted (using a 8-7/8% interest rate) over a 25 year project lifetime. This figure is then added to the annual value of a temporary protection measure. The methodology is explained and illustrated below:

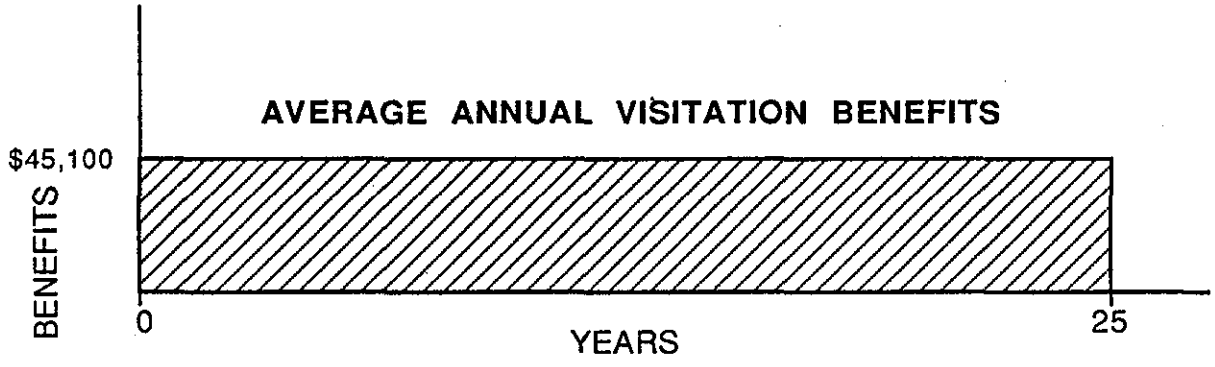
(1) A temporary slope protection project would be provided at a first cost of $25,000 and annual maintenance of $500, lasting 4 years:

[25,000+(500 x 0.7748) + (500 x 0.8436) + (500 x 0.9184)] x 0.1007 = $2,645 or $2,600

(2) After 4 years the slope protection would erode and the lighthouse structure would fail. Annual benefits are derived through present worth methodology. Annual benefits for the first year are $67,137 which remain constant for four years until the slope fails. From 4 years to 25 years the annual benefit is equal to the yearly value of the lighthouse which has been lost. The annual benefit is present worth of a constant series over 21 years (from year 4 to 25). This series represents lost visitation opportunities. We take the present worth of that series to the beginning of year 4 and present worth the lump sum to the beginning of the project life (year 0). Finally the total lump sum is amortized over the 25 year project lifetime. The figures below illustrate this methodology:



$67,137 x 9.378 (Present Worth 1 per period 21 periods) x 0.7116 (Present Worth for 4 periods) x 0.1007 (Capital Recovery Factor for 25 years) = $45,117 or $45,100



Total Annual Cost Avoided = Annual Benifit = $2,600 + $45,100 = $47,700

Annual Cost = $142,000 x 0.1007 =		$14,299
Annual Maintenance	=	500
Total Annual Cost		$ 14,799 or $14,800

Benefit Cost Ratio = 47,700/14,800 = 3.2

Table 4
Economic Evaluation

Annual Benefit	Annual Cost	B/C Ratio	Net Benefit
$47,700	$14,800	3.2 to 1	$32,900

AGREEMENT ESTABLISHING THE ROOSEVELT CAMPOBELLO INTERNATIONAL PARK

AND
LIST OF COMMISSIONERS

AGREEMENT BETWEEN THE GOVERNMENT OF CANADA AND THE GOVERNMENT OF THE UNITED STATES OF AMERICA RELATING TO THE ESTABLISHMENT OF THE ROOSEVELT CAMPOBELLO INTERNATIONAL PARK

The Governments of Canada and the United States of America

Noting the generous offer by the Hammer family of the summer home of President Franklin Delano Roosevelt on Campobello Island, New Brunswick, Canada, with the intention that it be opened to the general public as a memorial to President Roosevelt, and the acceptance in principle of this offer by Prime Minister Lester B. Pearson and President John F. Kennedy at Hyannis Port in May 1963; and

Recognizing the many intimate associations of President Roosevelt with the summer home on Campobello Island; and

Desiring to take advantage of this unique opportunity to symbolize the close and neighborly relations between the peoples of Canada and the United States of America by the utilization of the gift to establish a Canadian-United States memorial park;

Agree as follows:

ARTICLE I

There shall be established a Joint Canadian-United States commission, to be called the "Roosevelt Campobello International Park Commission", which shall have as its functions:

(a) to accept title from the Hammer family to the former Roosevelt estate comprising the Roosevelt home and other grounds on Campobello Island;

(b) to take the necessary measures to restore the Roosevelt home as closely as possible to its condition when it was occupied by President Roosevelt;

(c) to administer as a memorial the "Roosevelt Campobello International Park" comprising the Roosevelt estate and such other lands as may be acquired.

ARTICLE 2

The Commission shall have juridical personality and all powers and capacity necessary or appropriate for the purpose of performing its functions under this agreement including, but not by way of limitation, the following powers and capacity:

(a) to acquire and dispose of personal and real property, excepting the power to dispose of the Roosevelt home and the tract of land on which it is located;

(b) to enter into contracts;

(c) to sue or be sued in either the United States or Canada;

(d) to appoint a staff, including an Executive Secretary who shall act as secretary at meetings of the Commission, and to fix the terms and conditions of their employment and remuneration;

(e) to delegate to the Executive Secretary or other officials such authority respecting the employment and direction of staff and the other responsibilities of the Commission as it deems desirable and appropriate;

(f) to adopt such rules of procedure as it deems desirable to enable it to perform the functions set forth in this agreement;

(g) to charge admission fees for entrance to the Park should the Commission consider such fees desirable; however, such fees shall be set at a level which will make the facilities readily available to visitors;

(h) to grant concessions if deemed desirable;

(i) to accept donations, bequests or devises intended for furthering the functions of the Commission and to use such donations, bequests or devises as may be provided in the terms thereof.

ARTICLE 3

The Commission shall consist of six members, of whom three shall be appointed by the Government of Canada and three appointed by the Government of the United States. One of the Canadian members shall be nominated by the Government of New Brunswick and one of the United States members shall be nominated by the Government of Maine. Alternates may be appointed for each member of the Commission in the same manner as the members. The Commission shall elect a chairman and a vice-chairman from among its members, each of whom shall hold office for a term of two years, in such a manner that members of the same nationality shall never simultaneously serve as chairman and vice-chairman.

The chairmanship shall alternate between members of Canadian nationality and United States nationality every two years. A quorum shall consist of at least four members of the Commission or their alternates, including always two from Canada and two from the United States. The affirmative vote of at least two Canadian and two United States members or their respective alternates shall be required for any decision to be taken by the Commission.

ARTICLE 4

The Commission may employ both Canadian and United States citizens. Their employment shall be subject to the relevant Canadian labor and other laws, and the Government of Canada agrees to take such measures as may be necessary to permit United States citizens to accept employment with the Commission on a similar basis to Canadian citizens.

ARTICLE 5

The Commission shall maintain insurance in reasonable amounts, including, but not limited to, liability and property insurance.

ARTICLE 6

The Commission shall hold at least one meeting every calendar year and shall submit an annual report to the Canadian and United States Governments on or before March 31 of each year, including a general statement of the operations for the previous year and an audited statement of the financial operations of the Commission. The Commission shall permit inspection of its records by the accounting agencies of both Governments.

ARTICLE 7

All property belonging to the Commission shall be exempt from attachment, execution, or other processes for satisfaction of claims, debts or judgments.

ARTICLE 8

The Commission shall not be subject to Federal, State, Provincial or local taxation in Canada or the United States on any real or personal property held by it or on any gift, bequest or devise to it of any personal or real property, or on its income, whether from Governmental appropriations, admission fees, concessions or donations. All personal property imported or introduced into Canada by the Commission for use in connection with the Park shall be free from customs duties. Further consideration shall be given to granting exemption from other taxes the imposition of which would be inconsistent with the functioning of the Commission.

ARTICLE 9

Arrangements may be made with the competent agencies of Canada and the United States for rendering, without reimbursement, such services as the Commission may request for the orderly development, maintenance and operation of the Park.

ARTICLE 10

The Commission shall take appropriate measures to emphasize the international nature of the Park.

ARTICLE 11

1. The Governments of Canada and the United States shall share equally the costs of developing the Roosevelt Campobello

International Park and the annual cost of operating and maintaining the Park.

2. Any revenues derived from admission fees or concession operations of the Commission shall be transmitted in equal shares to the two Governments within 60 days of the end of the Commission's fiscal year. Other funds received by the Commission may be used to further the purposes of the Commission in accordance with the provisions of this agreement.

3. The Commission shall submit annually to the Canadian and United States Governments a budget covering total anticipated expenditures to be financed from all sources, and shall conduct its operations in accordance with the budget as approved by the two Governments.

4. The Commissioners shall receive no remuneration from the Commission; however, they may be paid reasonable per dieum and travel expenses by the Commission.

ARTICLE 12

This agreement requires implementation by legislation in each country; it shall come into effect after the enactment of such legislation on a date to be fixed by an exchange of notes between the two Governments.

Done in duplicate at Washington, this 22nd day of January 1964.

FOR THE GOVERNMENT OF CANADA:

Lester B Pearson

FOR THE GOVERNMENT OF THE UNITED STATES OF AMERICA:

Lyndon B Johnson

1/22/64.

Washington, D.C.

ROOSEVELT CAMPOBELLO INTERNATIONAL PARK COMMISSION

P.O. Box 9
WELSHPOOL, NEW BRUNSWICK E0G 3H0

P.O. Box 97
LUBEC, MAINE 04652

UNITED STATES COMMISSION MEMBERS

Full Commission Members

Honorable Edmund S. Muskie, Vice Chairman
Roosevelt Campobello International Park Commission
Attention: Ms. Carole Parmolee
1101 Vermont Avenue, N.W.
9th Floor
Washington, D.C. 20005

Honorable Franklin D. Roosevelt, Jr.
Clove Creek Farm
P.O. Box 1464, South Road
Millbrook, New York 12545

Honorable William S. Cohen
United States Senator
Attention: Ms. Cindy Waters
322 Hart Senate Building
Washington, D.C. 20510

Alternate Commission Members

Mr. Lawrence Stuart
33 Linwood Ave.
Augusta, Maine 04330

Mrs. Frances Barrett Hammer
c/o Florence Ajamian
10889 Wilshire Boulevard
Los Angeles, California 90024

c/o Ms. Eleanor Conners
1747 Pennsylvannia Ave., N.W.
Suite 375
Washington, D.C. 20006

Mrs. Eleanor Roosevelt Seagraves
1813 Shepherd Street, N.W.
Washington, D.C. 20011

CANADIAN COMMISSION MEMBERS

Full Commission Members

Honourable Hedard J. Robichaud, P.C., Chairman
Roosevelt Campobello International Park Commission
The Sandringham Apartments
Apartment 707
85 Range Road
Ottawa, Ontario K1N 8J6

Mr. Robert Tweedie
320 University Avenue
Fredericton, New Brunswick E3B 4J1

Mr. David H. Walker
Strathcroix
P.O. Box 397
St. Andrews, New Brunswick
E0G 2X0

Alternate Commission Members

Mr. Stuart D. Trueman
71 Kennebecasis River Road
RR2
Hampton, New Brunswick E0G 1Z0

Mrs. John Norris
12 Grove Park
Montreal 217, P.Q. H3Y 3E7

Mr. Rowland Frazee
The Royal Bank of Canada Bldg.
Box 6001
1 Place Ville Marie
Montreal, Quebec H3C 3A9

OTHER PARK OFFICIALS

Mr. Henry W. Stevens
Acting Executive Secretary & Superintendent
Roosevelt Campobello International Park
P.O. Box 97
Lubec, Maine 04652
Telephone (506) 752-2922 (Office)

Roosevelt Campobello International Park
P.O. Box 9
Welshpool, New Brunswick E0G 3H0
Telephone (506) 752-2922 (Office)

Mr. Donald R. Larrabee
Roosevelt Campobello International Park
Planning Consultant
Director
Office of the Governor
State of Maine
1288 National Press Building
Washington, D.C. 20045

Mr. Walter Hunt
Roosevelt Campobello International Park
Financial Consultant
Fifty-Five Broadway
Bangor, Maine 04401

CORRESPONDENCE

ROOSEVELT CAMPOBELLO INTERNATIONAL PARK COMMISSION

P.O. Box 9
WELSHPOOL, NEW BRUNSWICK E0G 3H0

P.O. Box 97
LUBEC, MAINE 04652

January 7, 1986

Colonel Thomas A. Rhen
Division Engineer
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, MA 02254-9159

Dear Colonel Rhen:

The Roosevelt Campobello International Park Commission supports the proposed emergency shoreline protection project for the Mulholland Point Lighthouse as outlined in the draft Definite Project Report, (DPR), dated November, 1986. The lighthouse is in imminent danger of failure and requires immediate attention.

The Commission has reviewed the Draft Local Cooperation Agreement (LCA) included in the DPR and agrees in general with it's requirements. However, Article II of the LCA includes a requirement that the Commission provide the equivalent of 25% of the total project costs. The Roosevelt Campobello International Park was established as an international resource with costs shared equally between the United States and Canada as shown in Article II of the agreement establishing the Park which is attached to the DPR. Article 8 of the agreement establishing the Park so states that the Commission is not subject to taxation, therefore Canada contributes, annually, approximately fifty thousand dollars ($50,000.) above their matching appropriation by absorbing real estate taxes on the properties of the Roosevelt Campobello International Park. Also, pertinent to cost sharing is Article 9 of that agreement which states that the Commission can make arrangements for services of agencies of the United States or Canada without reimbursement. For these reasons we ask that you not consider the Commission under the Local Cooperation Agreement (LCA) but as a Federal interest for the purposes of sharing construction costs and recommend this project for 100% Federal financing by the Corps of Engineers.

I would recommend that the Cooperation Agreement require only the signatures of the Chairman, Honourable Hedard J. Robichaud, and Vice Chairman Honorable Edmund S. Muskie, on behalf of the Commission, and that it be witnessed by myself as Executive Secretary.

The Commission fully understands and intends to satisfy all other items of it's responsibility as indicated in the LCA. We also understand that execution of a formal LCA will be required after the Plans and Specifications are substantially complete. At that time, a more detailed estimate of project costs and appropriate cost sharing arrangements will be prepared. The Commission will consider a formal agreement at that time.

Sincerely,

Henry W. Stevens
Acting Executive Secretary
Superintendent

HWS:reb

December 4, 1986

Planning Division
Plan Formulation Branch

Mr. Henry W. Stevens
Acting Executive Secretary and Superintendent
Roosevelt Campobello-International Park Commission
P.O. Box 97
Lubec, Maine 04652

Dear Mr. Stevens:

This is to inform you that we have completed our detailed project investigations into providing emergency shoreline protection at the Mulholland Point Lighthouse in the Roosevelt Campobello International Park.

The study was initiated in response to your April 3, 1986 letter. Mulholland Point has been eroding from the extreme tidal range and the swift currents of the Lubec Narrows. The lighthouse, located on the tip of the point, lies within one foot of the edge of the eroding bank and is in immediate danger of failure. The lighthouse has historical significance and is valued as a tourist attraction for the park. Our investigations conducted under Section 14 of the 1946 Flood Control Act, have established the need and feasibility of providing a graded stone slope protection system along 250 feet of the shoreline around the tip of Mulholland Point. The proposed project, estimated to cost $127,500, is described in the enclosed Definite Project Report.

Enclosed are 20 copies of the Definite Project Report for distribution and review. If the Roosevelt Campobello International Park Commission supports the report recommendation, a letter stating support from you is required prior to proceeding to the detailed design stage of the project. Your letter should also indicate the Commission's intent to agree to those requirements summarized in the report and stated in the draft Local Cooperation Agreement (LCA) included in the report appendix. The LCA is in draft form and does not require signature at this time. Upon completion of the detailed design stage the LCA will be revised, as necessary, and prepared for signature.

If you have any questions please contact me at (617) 647-8220. Mr. Peter Jackson is the project manager and may be reached at (617) 647-8555.

Sincerely,

Thomas A. Rhen
Colonel, Corps of Engineers
Division Engineer

Enclosure

ROOSEVELT CAMPOBELLO INTERNATIONAL PARK COMMISSION

P.O. Box 9
WELSHPOOL, NEW BRUNSWICK E0G 3H0

P.O. Box 97
LUBEC, MAINE 04652

April 3, 1986

Mr. Ignazio
Division Engineer
Attn: Chief Planning Division
United States Army Corps of Engineers
New England Division
424 Trapelo Road
Waltham, Massachusetts 02254

Dear Mr. Ignazio:

On behalf of the Roosevelt Campobello International Park Commission I have been instructed to request engineering services from the United States Army Corps of Engineers in reference to restoration to an eroding shoreline of a lighthouse recently acquried by the Park.

We have presented this problem to the 240th Engineering Group of the Maine National Guard, with Major Gneral Paul R. Day and staff, more directly with Captain Byron Race. You will find enclosed photos, descriptions, and recommended solutions proposed by the 240th Engineering Group of the Maine National Guard. Major Boyd R. Gray, Jr., and Captain Byron Race suggested that we contact your division to make engineering studies and decisions to resolve our problem. Preliminary survey data is available at the 240th Engineering Group of the Maine National Guard at Waterville, Maine.

For reference purposes stating what authorities you have in performing such services for the Roosevelt Campobello International Park Commission I am also enclosing copies of the "Agreement Between The Government of Canada And The Government Of The United States Of America Relating To The Establishment Of The Roosevelt Campobello International Park" (Ref. ARTICLE 9, Page 9); and "A BILL S.2464 88th Congres 2D Session Calendar No. 1040 IN THE SENATE OF THE UNITED STATES January 23, 1964" (SEC. 4 J, Page 53).

I will be awaiting your response, and thank you in advance for your cooperation in this matter.

Sincerely,

Henry W. Stevens
Acting Executive Secretary
Superintendent

HWS:amn

cc: Major General Paul R. Day
Major Boyd R. Gray, Jr.
Captain Byron Race